

# PATENT SPECIFICATION

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DRAWINGS ATTACHED



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## (54) IMPROVED CARTON BLANK

- (71) We, KNOLL A.G., CHEMISCHE FABRIKEN, of Sudermannstrasse, Postfach 210805, 67 Ludwigshafen am Rhein, 2, Germany; a German body corporate, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- The present invention relates to an improved carton blank and carton made therefrom.
- Cartons which are square or rectangular in cross-section have been known for many years. A blank for making such a carton may be a sheet of cardboard substantially cruciform in shape. The major portion, that is to say, the length of the carton blank, is provided with a plurality of scored lines thereacross, which scored lines extend substantially across the entire width of the blank suitably folding along these scored lines produces the outline of an open-ended carton. The side arms of the blank are also scored and folded. When folded, these latter produce the end flaps of the carton. In many cases, the flaps are produced in such a manner that one portion of each of the flaps, in the finished carton, lies adjacent one of the major portions of the carton. Such cartons may then be utilised for many purposes, such as the packaging of medicines. The filling of the carton and the folding over of the end flaps is usually effected by a single machine.
- If such a machine is adapted to deal with varying sizes of carton blanks, the quality and accuracy of cutting of the blanks is of importance. When the blank is being closed in the packaging machine, it is important that the box retains its shape. If the carton deforms due, for example, to the use of packaging material not having the requisite strength or due to the packaging material being damp, the packaging cycle is severely disrupted. However, preventing this deformation is somewhat difficult, particularly if the finished carton is large.
- It is therefore an object of the present invention to provide a carton blank which is stabilised and therefore less likely to deform during packaging.
- According to the present invention there is therefore provided a carton blank of substantially rectangular shape having a plurality of scored lines extending substantially across the width thereof, which scored lines define two major portions of the blank, two lateral extensions being provided, one being on one side of one major portion of the blank the other extension being on the opposed side of the other major portion, which extensions are each delimited from their major portion by a second scored line wherein two further scored lines are provided which are each located adjacent and parallel to the free edges of the major portions.
- Alternatively, the two extensions are provided on the same major portion and the further scored lines are located adjacent and parallel to the free edges of the other major portion.
- The invention will be further described, purely by way of example, with reference to the accompanying drawing, which shows a carton blank according to the present invention.
- A carton blank, generally designated 1, is substantially rectangular in shape. Extending substantially across the width of the blank are four scored lines 2. These lines 2 define two major portions 3, 4, two minor portions 5, 6 and a flap portion 7. By suitably folding along scored lines 2, it will be readily apparent that an open-ended box structure is produced, with flap 7 lying adjacent minor portion 5.
- On opposed sides of the blank two lateral extensions 8, 9 are provided. As shown in the drawing, extension 8 is provided on major portion 4 and extension 9 is provided on major portion 3. However, these lateral extensions may be provided on the same major portion. Each extension 8, 9 is delimited from its major portion by a further scored line 10. The scored lines 10, if pro-

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duced, coincide with the cut sides of the blank on each extension 8, 9 is provided a fold line 11 parallel to scored lines 10. It will also be readily apparent that by folding along lines 10 and 11 of each extension, the end closure flaps of the carton are produced. Moreover, edge portion 12 of extension 8 will lie adjacent major portion 3 and edge portion 13 of extension 9 will lie adjacent major portion 4. Minor portions 5 and 6 are also provided with lateral extensions 14 and 15, delimited by fold lines 16. The lateral extensions 14 and 15 are defined from the extensions 8 and 9 by cut lines 17. Parallel to, but spaced apart from the free lateral edges of the major portions 3 and 4 are further scored lines 18 and 19. When the blank is folded during the formation of the carton, the flaps 12 and 13 lie adjacent the scored lines 18 and 19 respectively. The provision of these scored lines reduces the tendency of the blank to buckle during folding thereof.

Assembly of a blank into a carton is effected in the manner detailed hereinunder. A blank 1 is provided with the scored, fold and cut lines already described. Folding is effected along each scored line 2 through substantially 90° such that major portion 3 lies parallel to major portion 4 and minor portions 5 and 6 lie perpendicular to and between the major portions. Flap portion 7 overlies minor portion 5 and is affixed thereto by any suitable adhesive. An open ended box is thereby produced. Folding is then effected along field lines 16 through substantially 90°. Flaps 14 and 15 therefore partially close the open ends of the box. Finally, folding is effected through substantially 90° along scored lines 10 and 11, such that edge portions 12 and 13 lie substantially parallel and adjacent to major portions 3 and 4 respectively. The box is now closed.

The additional scored lines 18 and 19 stabilise the closed carton and the blank can therefore be used in high speed packaging machines. The formation of these additional scored lines do not cause any particular difficulties during the preparation of the

blank since the same equipment used for producing the other scored lines can be utilised.

The spacing of the lines 18 and 19 from the edges of the blank and also the depth of scoring depends upon the size of the finished carton and the thickness of the material from which the blank is made. Merely by way of example, if the carton is 7 cm × 6 cm × 1 cm, it has been found that if the scored lines are located 3 mm from the edge of the blank, and the score depth is 0.2 mm, a particularly stable carton is obtained.

The maximum depth of the score depends upon the nature of the material. It should be appreciated that if the scored line is located too far from the edge, the carton will not be stabilised.

#### WHAT WE CLAIM IS:—

1. A carton blank of substantially rectangular shape having a plurality of scored lines extending substantially across the width thereof, which scored lines define two major portions of the blank, two lateral extensions being provided, one being on one side of one major portions of the blank, the other extension being on the opposed side of the other major portions, which extensions are each delimited from their major portion by a second scored line wherein two further scored lines are provided which are each located adjacent and parallel to the free edges of the major portions.

2. A modification of the carton blank as claimed in claim 1, in which the two extensions are provided on the same major portion and the further scored lines are located adjacent and parallel to the free edges of the other major portion.

3. A carton blank substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

4. A carton when made from a carton blank as claimed in claim 1.

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